

1 **APPARATUS METHOD AND SYSTEM FOR ASYNCHRONOUS**
2 **REPLICATION OF A HIERARCHICALLY-INDEXED DATA STORE**

3
4 **ABSTRACT OF THE INVENTION**

5 Changes such as write operations on a replication source comprising a hierarchically-
6 indexed file system and associated data store are tracked and aggregated over a point-in-time
7 image replication interval and communicated to a replication target. The replication target
8 receives the changes, conducts operations to make the changes on a target volume or portion
9 thereof, and conducts a point-in-time image replication operation to synchronize the
10 replication target with the replication source. In the present invention the advantages of
11 replication techniques developed for log-structured file systems are provided to systems with
12 conventional hierarchical file systems. The invention also facilitates maintaining point-in-
13 time retrievable images of a volume or portion thereof on a target volume while reducing the
14 bandwidth and processing burden associated with replication.